

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase;

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said rake frame support including at least one linkage member pivotally connected to said rake frame and to said rake frame carrier;

said force applicator including a fluid pressure responsive piston slidably received within a bore and connected to said linkage member to apply said downward force in response to fluid pressure within said bore;

each said rake including a downwardly depending spring secured at a frame end to said rake frame and a rake tip secured to said rake spring at a tip end of said rake spring distal said frame end; and,

wherein said frame end leads said tip when said rake is in an operative position.

REMARKS

The Examiner has rejected Claims 1-19 as being indefinite. In particular, the Examiner states that the limitation "said rake" in line 10 has insufficient antecedent basis. Applicant respectfully points out that Claim 1 refers to "said rakes" for which antecedent

basis is found in the expression "plurality of rakes." Applicant has nevertheless amended Claim 1 as suggested by the Examiner to recite "a plurality of rakes" in line 10.

The expression "rake from carrier" has been replaced with "rake frame carrier structure" to both correct a typographical error and to be consistent with the previously introduced structure.

Applicant acknowledges with thanks the Examiner's indication that Claims 2-19 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 set forth in the office action and to include limitations of the base claim and the intervening claims. The above amendments so amend Claim 2 from which the remaining claims depend. Accordingly, with the above amendment, Claims 2-19 are allowable.

The Examiner states that Claim 1 is anticipated by Scott (U.S. 5,265,975). The Examiner makes reference to "intended use recitations in Claim 1" and states that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. The Examiner has not clarified what is meant by "intended use recitations" and it is not apparent to Applicant to what the Examiner is referring. Claim 1 does include functional limitations which must be satisfied by some of the structure; this, however, is different from "intended use recitations."

An important feature of the present invention is its "ride up" capability which enables the rakes to exert a substantially constant downwardly directed force rather than being locked in position, thereby enabling the rakes to respond to obstructions by riding up over those obstructions. In order to accomplish this, two things are required. Firstly, the rakes must be mounted in such a way to produce an upwardly directed resultant in

force in response to a horizontally directed force arising from encountering an obstruction in the path of travel of the raking device. This functional limitation is clearly set forth in Claim 1. In a preferred embodiment of the invention, this may be achieved by the manner in which the rakes are mounted to the frame using springs.

Scott would not be capable of producing such a resultant force. If the tips 3 of the teeth 2 in Scott were to encounter an obstruction, a horizontally directed force rather than a vertically directed force would be produced in cylinder 19-a. And no force would be produced in the cylinders 12a and 12b which the Examiner refers to as a force applicator.

The second feature of Applicant's invention which enables the ride up capability is the ability of the hydraulic system to respond to an upwardly directed force above a pre-set amount to enable the rakes to move upwardly once this force has been exceeded. In other words, once the rakes encounter an object, an upwardly directed force is produced which exceeds the force to which the rakes are ordinarily subject in order to scarify the underlying surface. The force applicator reacts to the increased force and rather than locking the rakes in place, allows the rakes to ride up.

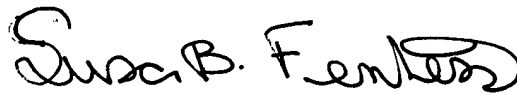
In at least the preferred embodiment of the invention, the force applicator includes fluid pressure responsive pistons slidably received within a bore and a fluid pressure supply system with a fluid pressure bleed passage through which a portion of the pressurized fluid is continually bled off at a flow rate determined by a pressure.

Scott simply fails to teach an apparatus which has a force applicator which responds to an increase in upwardly directed force. As Scott does not produce the upwardly directed force in the first place, there would be no reason for Scott to have such a system. There is nothing to suggest that Scott utilizes anything but a conventional

hydraulic system in which a valve blocks flow out of the hydraulic cylinder once a predetermined amount of extension is obtained. Such a system would in effect lock the rakes rather than allow for an upward movement.

For the reasons set out above, Applicant respectfully traverses the Examiner's rejection of Claim 1 when 35 U.S.C.(b) as being anticipated by Scott and requests that the Examiner reconsider and withdraw his rejection with a view toward allowing Claim 1. Applicant respectfully submits that the application as amended is in condition for allowance and action towards that goal is respectfully requested.

Respectfully Submitted,



Susan B. Fentress
for the Applicant

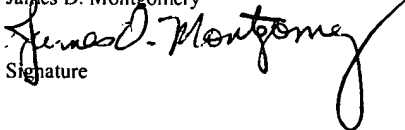
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Signature

APPENDIX A

Marked Up Version of Amended Claims Pursuant to 37 C.F.R. §1.121c(I)(ii)

1. (amended) A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction path in a path of travel of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake [from] frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase.

2. (amended) [A raking device as claimed in claim 1 wherein:]

A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction in a path of travel of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase[.];

said rake frame support [includes] including at least one linkage member pivotally connected to said rake frame and to said rake frame carrier;

said force applicator [includes] including a fluid pressure responsive piston slidably received within a bore and connected to said linkage member to apply said downward force in response to fluid pressure within said bore;

each said rake [includes] including a downwardly depending spring secured at a frame end of said rake frame and a rake tip secured to said rake spring at a tip end of said rake spring distal said frame end; and,

wherein said frame end leads said tip when said rake is in an operative position.

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